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From the Editor's Desk

APPEARANCES account for the acceptance or rejection of more articles than the average manufacturer realizes. People are quick to form opinions about what they see—especially when they look at something new for the first time. The outward appearance of a new article carries a tremendous responsibility. It registers as a powerful first impression upon everyone who sees it—and thereafter that outward appearance is responsible for the article's instant identification.

Knowing this, we can begin to appreciate the importance first, of a balanced, well-proportioned form of design that satisfies and pleases the eye even in dim light, and second a color, luster, smoothness of surface, and decorative effect that is strikingly attractive and appropriate. Any article with these characteristics has a tremendous advantage over all its competitors' that are lacking in this respect. If its appearance in both design and finish commands admiration or even elicits favorable comment, it has automatically made substantial progress in selling itself to prospective buyers.

Do not overlook the fact that very few articles always enjoy the advantage of being "talked up" adequately by sales people who are really interested, enthusiastic and well-informed. Too often retail buyers are served by indifferent sales people. Picture in your mind this latter condition and then ask yourself, "Is my product sufficiently outstanding in attractiveness and finish to arrest attention and get favorable consideration even, if it isn't backed with a strong sales talk?"

A manufacturer can make no better investment than to spend money wisely in putting onto his merchandise an attractive and durable finish. In a buyer's market the burden of creating a favorable impression, to make the selling job easier and more effective, is placed largely upon the design and finish of the goods itself.

W. H. Rohr

Managing Editor

They know their job

Experienced industrial finishers know their job and they know that their own skillful knowledge must be supplemented with efficient spray-finishing equipment if production schedules are to be maintained and costs are to be kept down.

As the result of years of practical experience they know that if their equipment is to be kept at its highest peak of efficiency, it should be kept up-to-date and in step with the most recent developments. That is why industrial finishers often call in a DeVilbiss representative even though no new equipment is being considered, just to get the latest ideas on spray-finishing methods. They know that the DeVilbiss man is always glad to offer freely from his wide experience whether he makes a sale or not; in fact, he will often make a suggestion which *makes unnecessary the purchase of more equipment.* There is a DeVilbiss representative near you. Send for him without obligation or expense. Or write.

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Rubbing, Polishing and Buffing Mechanically

by P. C. BARDIN

IN SPITE of some of our worthy critics, management today is looking to power equipment to perform the chores of industry, more than ever before. Manufacturers are almost forced to find easier and quicker methods because of competition.

One division of power equipment that is receiving marked attention is that used for rubbing, polishing and buffing. This equipment is divided into two general classes, stationary and portable. Both air and electricity are used as motive power. The choice of the particular type of machine depends largely on the material to be worked on, area and shape of the surface, size of the units and physical shop conditions.

Let it be understood here and now that while what I have to say about the specific classes of equipment and the particular machines is perhaps the accepted use of each of these machines, I do not claim that the various machines cannot be used for other purposes; that they are not interchangeable in utility. To advocate confining each machine to its accepted use, would be to destroy initiative. New and better methods come from those who have the courage to deviate from the well trodden path by way of intelligent experiments.

Stationary Machines

In the stationary class, the adjustable, long-stroke rubbing machine, such as used for rubbing the tops of large desks and tables, is an important machine. Although this machine is used chiefly for rubbing wood products, there is no reason why it can not be used on products other than wood, as long as sufficient quantities of definite size pieces are worked. In this machine the

height of the piece as well as its length enters into consideration.

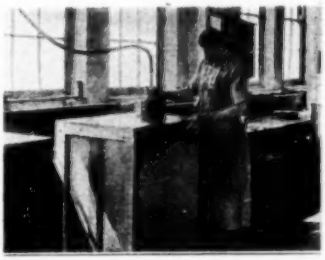
The other type of machine in the stationary class is the cloth wheel, commonly known as a buffing wheel, which is placed on a horizontal spindle and operates similar to a grinding wheel. This type of machine is used for smoothing (grinding) or burnishing raw metal surfaces, polishing plated ware and for the "brushing" operation in the vitreous enamel field.

The various operations are performed through the use of different wheels, ranging from an emery coated surface (edge) to the plain cloth wheel. Thus far, this machine has been a tool of the metal working industry, and in shoe repair shops where it is used for polishing leather sole and heel edges. However I see no reason why this machine could not be used for rubbing and polishing comparatively small wood parts having irregular or curved surfaces, and finished in solid colors.

Portable Machines

The portable class of polishing and buffing equipment is larger and includes a greater variety of machines with many refinements of construction and speeds. Being portable or semi-portable, these machines embrace a wider field of utility than either of the stationary machines. In the portable group, the air operated rubbing machine, shown at the beginning of this article is popular among finishers of wood products.

This machine is especially adapted to rubbing comparatively small flat surfaces. Two square felt pads operating with a rapid reciprocating motion perform the rubbing operation. The air motor is comparatively heavy so that in rubbing the surface very little pressure need be exerted by the operator. Although the felt pads are fairly resilient, a perfectly flat surface is absolutely necessary to do satisfactory work with this machine. Care must be exercised when rubbing the surface close to the edges to prevent cutting through the finish.



Operator at work with portable pneumatic machine—useful for smooth sanding or rubbing and polishing.

Sandpaper may be attached to the pads of this machine for sanding the finish between coats. One large plant, producing a well known and widely distributed metal product, has developed a miniature double-pad, single-grip machine of this same type for use in sanding putty glaze and undercoats on metal surfaces. This machine is of such size and weight that it is possible for the operator to conveniently hold the machine in one hand while he sands the metal shell, which is either laid on the bench or held in the operator's free hand. These machines are designed and built for a particular purpose and a specific, standardized product, and they have proved to be very efficient.

This company uses these same machines for rubbing the final lacquer coats with pumice and water on both flat and slightly

curved surfaces. Satisfactory rubbing of slightly curved surfaces is made possible with flat felts, through the small size of the felts and the light weight of the machine. By this means, the machine can be easily and readily manipulated, and the pressure regulated so as not to cut through the finish.

Editor's Note: This is the first of two articles about "Rubbing, Polishing and Buffing Equipment." In the second, which will appear next month, various types of flexible shaft rubbing and polishing machinery and accessories will be discussed.

Chamois Polisher

A very interesting variation of the chamois skin which has come to my attention consists of small pieces of chamois neatly tucked into a convenient handle of the clothes-brush type. It would seem that such a polisher (for so it is named) would eventually find considerable use around the average finishing room. Certain it is that it would be especially convenient for working up into close corners. —J. E. Hyler.

Safe Transfer Pump

With such close attention being given to fire hazards from every angle in the finishing room, it is not strange that we should find several concerns using a fireproof transfer pump for drawing materials from the drums and transferring them from place to place. Equipped with a flame baffle which prevents fire from entering the drum, and also with a ball check valve which immediately stops the discharge of liquid as soon as the operator stops turning the handle, there is little wonder that it has become so popular. Among the terms of hyphenated praise which are accorded it, vapor-proof, fire-proof, explosion-proof, non-static, non-ferrous and non-corrosive are outstanding.—R. G.

To Manufacture Finishes

A new firm has been incorporated under the name of Beeswax Laboratories, Inc., 339, 20th St., Toledo, Ohio. W. E. Stuck, president, is the founder of the beeswax formula to be produced by this company. J. Paul Bersee, is vice-president and director of sales.

Products of the Beeswax Laboratories, Inc., will be wax finishes and preservatives for wood, metal and leather. The company will also create special finishes for architects, builders and furniture manufacturers.

Colors Popular for Automobiles

According to the February issue of *Automobile Color Index*, published monthly by the Duco Color Advisory Service, blue has regained a portion of the ground lost in January although it appears probable that the extent of blue's current advance (dating back to last September) is about completed. Serge and Manganese blues continue to dominate the group of leading blues.

"The relatively few cars displayed in black at the recent New York Automobile Show," says the *Index*, "seemed to indicate that the car manufacturers anticipated a decrease in the demand for black. Such has not been the case, however, to judge from the sharp rebound recorded for this finish upon the *Index's* automobile color chart."

"Green has experienced a decisive decline since January," the *Index* informs us. "It has been relegated to third place by black."

Regarding brown, gray and maroon as colors for automobiles, the *Index* says: "The brown color family moved ahead abruptly this month to fourth place at the expense of gray and maroon. Browns of soft, grayish characteristic continue in importance from the viewpoint of the consumer interest.

"Gray has reflected a considerable loss of interest since last month's spurt, in spite of the return to prominence of Pewter Pot—a dark, neutral, granite gray.

"Maroon's recent advance has been checked for the present; a rich red of predominating maroon characteristic erroneously tabulated in the red group last month."

Matching Sample Finishes

by E. W. BRUCE

For mixing and making stains correctly, it is absolutely necessary to have the proper equipment—namely, scales, graduates, measures and containers for the stains. (I prefer balance scales with movable pans that will weigh from 1/128-oz. to about 6-lbs., then I can make up a given amount of stain from a formula specifying measures in ounces and fractions of ounces.) With this equipment and the requisite color products, one can match almost any color and finish specified and keep a correct record of it.

ONE of the most important parts of the finishing foreman's daily routine is the matching of colors and finishes for a special order. If it is a very large contract order, in all probability it has been "split" with one or more plants—and it is up to each finishing foreman to match as nearly as possible the sample given him.

Right here a big mistake is usually made, as these matchings are often rushed and the several treatments are not permitted to set and dry properly. As a result the test sample isn't matched correctly, and after it has stood for a few days the color may change considerably. At the time of completion the match may be perfect, but the work that comes through may be several shades off, due to the matching having been rushed.

I have found that much valuable time can be saved if each operation or treatment is given the same amount of time as it would receive in the regular routine of work. Really, color or stain matching usually involves some experimenting—and experiments should never be rushed.

I have had to make and match hundreds of colors and finishes. After a man has become experienced and skillful at this work, it is easy to quickly form an idea of what a sample color contains and how it was made. Each time a new finish is given to me to match I turn to what I call my "master sample case," which contains about 150 sample colors and finishes, and pick out the one that comes nearest to matching. Then I vary the formula enough to produce a shade similar to the one received. I then take six or eight unfinished sample blocks and make a stain from the formula that I have taken from the master sample case; usually I make the stain a trifle dark. I then stain one block with this stain and then dilute the stain with a certain amount of water for each remaining test sample. Each one is numbered and the strength of stain is determined by adding the amount or percentage of dilution used to the formula I first made.

As an example, take 2-oz. of powder, soluble in water, and dissolve it in 16-oz. of water, being sure that it is dissolved thoroughly. Coat one sample block with this solution; then add 2-oz. of water to this solution each time for the remaining test sample blocks. If you had eight blocks when you started, you would have a trifle less than 30-oz. of stain when the last one was coated. If sample No. 4 matched the sample sent in, the strength of the correct solution would be 2-oz. of powder to 22-oz. of water. Finish all of the test samples the same as the sample sent in—using shellac, wax, lacquer or varnish according to the specifications.

Filler plays a very important part in the color effects and has to be closely watched. I always attach a card or label to finish samples just as soon as they are received. These cards or labels have the name and address of the customer, order number and the date received. When the order is complete, I take (1) the sample finish sent in, (2) the duplicate finish sample that goes through with the first piece of work, and (3) the formula, and place them in a special envelope on which I write the customer's name, address, order number, and date the order was received. I file this envelope in a drawer in a cabinet that was made especially for that purpose. This drawer has a label on the front giving the year that the enclosed samples were received and the order numbers from the lowest to the highest that the drawer contains—for example, "1930, Order Numbers 730 to 780."

If this system is followed it only takes the foreman a few seconds to find any sample finish on file regardless of how long it was since that finish was used.

As for sample blocks for finishes I find a convenient size to be ¼x3½x5½-in. The envelopes should be of a tough strong paper for the sample finishes, duplicates and formulas, and should be 5x7-in. to permit duplicate finishes of the same kind, and for the same customer to be enclosed with the original, should said customer place an order for goods with the same finish any time in the future. The drawers for the sample finishes should be 8-in. high and 5½-in. wide inside measurements; they can be made any suitable depth.

I have found that it saves a lot of grief and worry when all dry finishing powder colors are obtained from one reliable dealer, as their coloring strength is more uniform.

W. J. Takes Joins Sales Div. of North Bergen Varnish

Mr. William J. Takes has joined the Industrial Sales Division of the North Bergen Varnish Corp., North Bergen, N. J., according to information received from Jules L. Bauer, secretary and treasurer of the company. Mr. Takes will devote his time to the development of industrial sales in the metropolitan area.

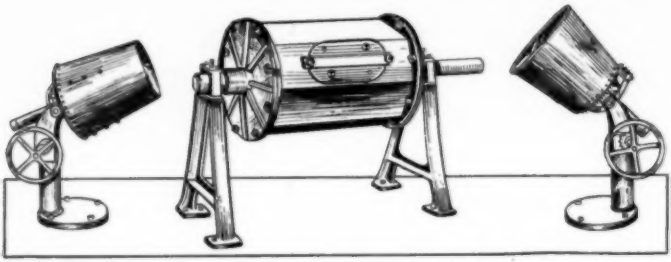
Reference Book on Stampings

For some unknown reason the Metal Stamping branch of industry has never had its full share of reference books, as have other branches.

Realizing this and in order to make it easier for the machine designing engineers to intelligently incorporate into their specifications the definite facts and figures necessary, The Geometric Stamping Co., Cleveland, Ohio, has just published such a reference book.

It consists of 28 pages profusely illustrated with charts, graphs and tables.

Anyone using stampings, forgings and castings should have a copy. Although the price is $1.00, a copy will be sent free to anyone writing on their firm's stationery and mentioning this magazine.



Tumbling Barrels

for Finishing

by HAROLD C. BOOTH of
The Henderson Bros. Co.
"The Tumbling Barrel People"
Waterbury, Connecticut

STRICTLY speaking there are only two general types of tumbling barrels — namely, "horizontal" and "tilting." The horizontal barrels are those that rotate on a horizontal shaft while tilting barrels, as the name implies, are barrels that rotate on a tilted axis, the axis tilting at an angle anywhere from say 15° to 30° from horizontal. Barrels that rotate on a horizontal axis may be perfectly cylindrical, or they may be hexagon or octagon in shape; as a matter of fact, horizontal tumbling barrels may have anywhere from four to ten sides, but the six to eight-side barrels are more frequently used for general tumbling.

Tilting barrels have circular sides and are open at one end—the top. Usually the circular sides flare like the sides of a water bucket; in other words, one end is smaller in diameter than the other. Sometimes the open end is the small end and sometimes it is the larger end.

Tumbling barrels may be built of wood or metal, but metal barrels are generally preferred for tumble finishing, because the metal does not absorb any of the finishing material (principally vehicle) and it affords a surface that can be more readily cleaned than wood.

One company making various paints and lacquers has worked out a process using a horizontal barrel. This is primarily for quick-drying lacquers and enamels. The principle involved is that of keeping the air away from the work while the color is being applied, and admitting it to the work after the color has been rolled on. One side of the barrel has an opening for which there are two interchangeable doors, one a screen door and the other a solid door. The solid door is put on first for a few minutes while

the work is being tumbled to apply the color. After sufficient time has elapsed to allow the work in process to become coated, the solid door of the barrel is replaced by the screen door to allow the air to set the color.

A variation of this method has been advised and tried by one of the tumbling barrel companies, except in this case a tilting barrel is used. A solid cover is placed over the open end of the barrel while the work is being coated; then the cover is removed for the drying or setting of the color. This simplifies matters considerably because the solid cover does not need to be fastened on, and can be removed without stopping the barrel.

I know of several companies whose work is general wood turnings; they found that wood barrels loaded up and spoilt the finish, so that occasionally they ran just turpentine and other vehicles to take off the built-up color inside the barrel. This was expensive and slow, so eventually they used a steel barrel and find that a quart of thinner occasionally is all that is needed to prevent the barrel from loading up

Some experimenting has been done on the so-called "continuous tumbling operation" without very much success. In this method, the work is coated in one compartment and, by means of spirals or other interior devices, transferred to another compartment. It is also emptied from the barrel automatically. While the idea of labor saving is a good one, it has been found that the addition of mechanisms inside the barrel to carry the work usually interferes with the successful coating of the surfaces being finished.

Some day this continuous processing may be developed, because many people are giving a great deal of thought to the idea. When it does come it will fill a long felt need because its advantage will be in mass handling as versus individual racking, as in dipping conveyors, etc. Many companies prefer the tumbled finish because it more nearly corresponds to brushing, and they feel that the rubbing on of the color gives a durable finish.

To get back to a comparison of the horizontal and the tilting barrels, there is another feature that very often has been responsible for the use of horizontal equipment. In wood-turning plants very often it has developed that the work could be smoothed up more easily by tumbling. The foreman therefore cuts out a few boards for sides and ends and assembles a cheap homemade barrel. By natural development the question of tumbling color on the work soon develops, and the same type of barrel is again made up for finishing.

Now by this apparently logical building of barrels, the foreman unwittingly lets himself in for a great deal of trouble. As regards the shop assembled wood barrels, they apparently are satisfactory except that they are costly—but in the case of coloring, the first few jobs require an excessive amount of color because the wood barrel is soaking up the various oils, etc., in the coloring matter. Later on the wood in the barrel becomes well coated, and for a while things are going along smoothly. Then the color begins

to build up on the interior surfaces of the barrel and the work is tumbled around on a paint film with poor results.

A short time after this a few samples have to run in some other color, and the job of cleaning out the barrel or building a new one is brought up. The ultimate result is that the cost of coloring has far exceeded reasonable limits. If a properly designed barrel of metal had been used in the first place, the difference in cost of the original equipment would have been saved very quickly.

Now if the above mentioned foreman, when he saw the need of tumbling either for smoothing up or for color finishing, had gone into the situation he would have found something about like this: A horizontal cylindrical barrel will impart a rolling motion, or if made with sides a more decided tumbling or mixing action—up to the square barrel which is a throwing or violent mixing action. By comparison a tilting barrel would impart a combination of rolling and sliding, the amount of action varying according to the angle of tilt and shape of the tumbling barrel.

A short time ago I was asked by one of our customers to comment on which type of barrel was best for japanning. He had seen a reference describing the tumbling of wood turnings, using a horizontal barrel, and felt that perhaps there was room for improvement in his enameling by changing his equipment. Again last week this question was brought up to us by another prospective customer, and I believe a discussion of the subject might be of general interest

This combination of sliding and rolling comes about in the tilting barrel because the rotary action of the barrel imparts a rotating or rolling action, but because the barrel itself is on an incline or tilted the action of gravity causes the work to always seek the lowest corner; when it reaches this corner the rotation of barrel carries it up the side again so that we have a continuous seeking of the lowest point of the barrel caused by the barrel's rotation.

Sometimes, in a properly designed horizontal barrel, the work will slide from end to end while rotating, giving a similar action to the tilting but in most cases this would have to be helped along by making the barrel larger in the middle than at the ends. Many companies making buttons and other small items have found that the tilting barrel will accomplish the same tumbling in sometimes as little as one third of the time required by a horizontal barrel.

The tilting barrel, however, does not work out as satisfactory on larger work, particularly in work like handles and other parts where the large dimension is several times that of the diameter. In such cases, by careful loading, the horizontal barrel can be made to do a better job in coloring because the end-over-end action of the tilting barrel does not allow the whole piece to be coated.

Thus we have worked out the following rule as a guide to the procedure and barrel: If the work is not larger than would reasonably mass up in the size barrel under consideration nor is much longer than its other combined dimensions the tilting barrel is usually recommended. If it is

fairly large in comparison to the volume to be done or has one dimension much longer than the others, use a horizontal barrel. This rule is not inflexible but it does act as a sort of general guide in deciding the type of barrel to consider.

It is well also to remember that the tilting barrel being open on the end allows easy inspection of the work while tumbling and it is this feature alone that outweighs all other advantages of other types of barrel, such as capacity, etc. Some firms have used the horizontal barrel because it holds approximately 2½ times as much work per load if the maximum cubic content of the two barrels are nearly equal. However, in coloring operations, practical experience shows that the capacity of the barrel is a minor consideration, because the best work is done by not loading the barrel too full.

Whichever type of barrel may be used, the process of "barrel coloring" is not very complicated. Simply stated, it is merely tumbling the work to be colored in a barrel and adding sufficient coloring matter to coat the work. The details as to how much work and how much color, and what type of coloring material, must be worked out according to local conditions.

The material to use must be suitable for a "tumbling finish." Not all coloring finishes can be applied by tumbling, so this matter should be taken into consideration by the firm making or supplying the color. The amount to use will vary according to the type of job, but it can be approximated if one knows how many square feet of surface per gallon the paint, lacquer, or coloring material will coat. If this cannot be accurately predetermined, then use a graduated container of some kind for pouring on the coloring material, adding to the mass only a little at a time until you get the right body on the work. Then make a note of the amount used and the quantity of work in the barrel. After this the proper mixture can always be pretty closely calculated.

The time of tumbling is directly proportional to the load and amount of surface. Usually a few minutes' time is sufficient to properly coat the work in the barrel, but there are various methods of finishing, such as air-dry finishing, bake-finishing, and combination of spraying and tumbling. Usually, for a baked finish, the work is just coated and then spread on trays and baked, putting on additional coats as needed. A quick-drying enamel or lacquer will properly coat in a few minutes, but the work is usually left in the barrel for several minutes more and tumbled smooth. Then again, sometimes in quick-drying, the first coat is color only, depending on a second coat for giving the gloss and finish. In this case many operators leave the work right in the barrel after the first coat, tumbling it until dry—then adding the second coat and drying this by spreading the work on screens, etc. All of these details must be worked out according to local shop conditions.

In a previous paragraph, much is said of the advantages of a metal barrel over a wooden barrel. The metal barrel allows easy cleaning, it doesn't absorb oils or finishing material and it is more durable. The tilting barrel is said to be better because of its open end—and this open end also has allowed for the development of a "flare-out," or as it is usually called a "japanning barrel." This

flare-out has two advantages, the first intentional—namely, to let air at the work while tumbling. The second is incidental but nevertheless important—namely, inspection of work with no shadows caused by the sides tapering in. There is another advantage that lately has been made much of, and that is the ease in using pails that fit the inside of the barrel, one for each color.

Another development, though of questionable value, is that of a baked finish such as porcelain or vitreous enamel on the inside of the barrel. This is to make a very smooth surface inside the barrel but, except for real fussy work, its cost is prohibitive for ordinary tumbling.

Many companies use the standard "flare-in" type of tilting barrels, saying that they hold more work and that there is no tendency of the work to fly out of the barrel. This no doubt is true where large quantities of work are put into the barrel, and the coloring is for body only—as in the case of a large number of toys, wood turnings, etc.—but if the surface of the finish must be smooth and free from defects it is not good policy to overload the barrel. Some of these parts are again tumbled in wax after coloring, and the second tumbling takes off any roughness on the surface.

Taking it all in all, perhaps the tilting barrel is more generally suited to the application of color by the tumbling process. Its advantages are primarily ease of handling the work, easy inspection and, to some extent, a better tumbling action. Nevertheless, there is no reason why good results cannot be obtained in the closed-type horizontal barrel. This would have a greater capacity and perhaps, in cases of quick-drying color, it will give the desired results more certainly than the open-end tilting type of equipment.

My experience would indicate that regardless of the barrel, a great deal depends upon the common sense application of easily-determined data such as *covering capacity, quantity to coat per load, and just what type of finish is desired.* It is best to first determine what you wish to do, then choose the barrel upon its relative merits for your particular work. Good work can be done and is being done in both types of equipment.

Marbleized Fabrikoid

Marbleized effects on Fabrikoid are recent developments of the Fabrikoid Division of E. I. du Pont de Nemours & Co. These are in keeping with the vogue of marbleized effects in other branches of industry and are indicative of the various treatments to which Fabrikoid may be subjected. The material is in a number of color combinations, some printed in one color and some in two colors. Others are printed in one color with a Spanish finish. The fabrics are expected to be popular in the automobile and furniture fields, in addition to stationery, novelty bookbinding, packaging, case covering, luggage and many others in which decorative effects are designed with luxury appeal.

N. F. Junker Now President of Norman Varnish Co.

Mr. Norman F. Junker, who was with John L. Armitage & Co., of Newark, N. J., for over 12 years, active in both production and sales, is now President of the Norman Varnish Co., of Brooklyn, N. Y.

Mr. Junker is director of sales and predicts a rapidly-growing market for pearl finishes on all kinds of industrial products. The Norman Varnish Co. has specialized in the creation and production of various types of pearl finish and effects. The company also makes a complete line of lacquers, varnishes and enamels for wood, metal and composition industrial products.

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Finishing Electric Light Fixtures

by J. W. LONDON

IN THE finishing of electric light fixtures for the small home one is usually required to match the wallpaper or the drapes of the room wherein the fixtures are to be placed. Also the type or style of architecture of the house—for example, Spanish, English, Colonial, or modernistic design.

In Spanish houses most finishes are of the rusty iron type, with different tones of color added to match the furnishings of the room. Homes of English style require polished brass or brass highlighted with a body color. Colonial homes call for finishes of gold or silver background, with color on the ornaments to match the surrounding color scheme of the room. This then can be toned down to the general color of the room, as brown, gray or fog-green. For the home done in a modernistic style one has the designs and colors that bring out the best effects—such as marbleizing, crystalizing and crackle finishes, and the straight colors such as orchid, fog-green, smoke-blue, sand-gray, and burnt-red.

On marbleizing, crystalizing and crackle finishes, it is important to use some discretion and not overdo this, as a little of this type of finishing goes a long way. I suggest finishing the arms, canopies, tassels, and candlecups with a background of color on the

body, or backs. Take the marbleizing finish for instance; the arms, canopies, tassels and candlecups can be sprayed white and then given a verde-green top coat, while the chain and body are sprayed rusty iron with an umber tone and light green dust. This makes a finish that anyone should be proud of.

Following are a variety of finishes that will cover most points that a spray-man will come up against in finishing electric fixtures for the small home.

Marbleizing Electric Fixtures

As most electric fixture parts are small and can be handled easily, the quickest and cheapest way to marbleize them is by the dipping process. One of the color schemes extensively used consists of a gray base coat with a green top coat. Another is a black base coat and green top coat; or a white base and black top coat. The base coat should be lacquer; the top coat should be either stain or color ground in oil.

The color is floated on water and the object is dipped into it and lifted out slowly to gather up the color. The color must be thin, and the object should be blown dry with an air gun to remove all surplus water. It is best to dry the color finish in an oven before the clear lacquer is applied.

If the body of the fixture is done in rusty iron, the canopy and candlecups also should be done in rusty iron. Then finish the arms, chain, loops and tassels in a marbleized effect. This makes an attractive fixture that will show up well in a room with heavy settings.

Pirate Gold Finish

The main body and arms are sprayed with a lacquer of French gray color. All flowers, leaves, loops, chain and candlecups are sprayed dark blue. When dry, these parts are decorated with bright red and orange. The body and arms are sprayed with brass bronze* over the top of the French gray. This gives the gray a metallic effect. For toning, use a material made up in the proportion of 1-lb. of medium chrome green ground in japan to 1-pt. of turpentine, and add enough boiled linseed oil to retard drying 5 or 10 minutes. This finish is applied with a brush. If it is to be sprayed on, add one more quart of turpentine. Wipe this finish with a rag so that undercoats show through, but it should be wiped clean in the middle and left heavy at the ends so as to give a shaded effect. All parts are dusted with rottenstone when the toner is dry—and then dusted with a clean dust brush to remove excess rottenstone.

Polychrome Rusty Iron

BASE COLOR: Spray all parts dull black, with material made up in the proportion of one teaspoonful of aluminum bronze added to each pint of lacquer.

DECORATION: The color used should be a high-gloss lacquer enamel. The best results will be obtained by giving the color a coat of clear lacquer. A real dark red and dark chrome green or blue are the best colors on this finish. Gold should be applied to all ribbons or stems.

TONE: Use material made up in the proportion of 1-lb. of burnt turkey umber in japan, to 1-pt. of turpentine.

DUST: The best results are to

*Made by mixing material in the proportion of one teaspoonful of brass bronze with 1-pt. of bronzing liquid.

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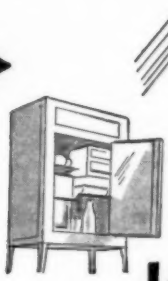

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dust the entire fixture with dry burnt umber, but a softer finish can be obtained by dusting with rottenstone.

This finish can be varied by changing the base color to a dark brown, or by adding copper bronze instead of aluminum to the black enamel.

Antique Ivory

BASE COLOR: Spray all parts with an ivory color.

DECORATION: Shade all ends and edges with Roman gold. All colors should be lacquer enamel thinned 50% with thinner. Decorate flowers in bright red or blue; leaves should be green.

HIGHLIGHT: Highlight all leaves and raised parts with brush-brass bronze powder. This is done by taking a 1-in. sash brush and dipping just the end of the brush in the mixed bronze and then letting the brush touch the raised parts only. Do not get too much bronze on the brush or the effect will be spoiled.

TONE: Use material made up as follows:

Lampblack ground in oil	¼-lb.
Burnt umber	¾-lb.
Turpentine	1-qt.

Apply this toner, and when nearly dry wipe all parts "the way the object runs," that is, wipe the arms lengthwise, the canopies around, etc., so as to leave the toning show no "chopped up" marks, but an even effect of tone marks. When the toner is wiped and dry, dust the entire fixture with rottenstone, using a dry dusting brush for the work.

This finish is the form for almost any antique finish—silver, gold, copper, gunmetal, aluminum, fire-bronze, or brush brass. By changing the base coat one changes the finish.

Indian Gold

BASE COLOR: Spray everything with Roman gold made up in the proportion of three teaspoonfuls of powder to 1-pt. of bronzing liquid.

DECORATION: Shade all ends or outside edges with black lacquer. The color used should be colored bronze powder. Red and green colors are used. Do not follow any special design when applying the color; this is to have a shaded effect all over the fixture. Apply the red first, the green second; divide the color so that a little more gold shows than color.

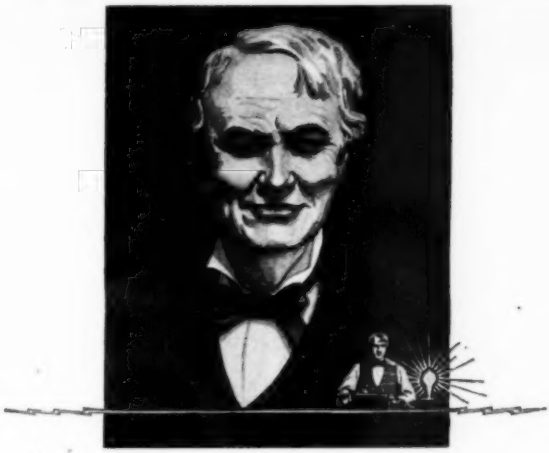
TONE: Use a material made up in the proportion of 1-lb. of Van Dyke brown ground in japan to 1-pt. of turpentine, and add enough oil to retard drying 5 or 10 minutes. If this is to be sprayed, add one more quart of turpentine. Wipe dry with a rag.

Lawrence-McFadden Sales Director

W. M. Hoey, formerly with the Cleveland Varnish Co., has been appointed director of western sales for the Philadelphia firm of Lawrence-McFadden Co., with offices and warehouse located at 1927 S. Crawford Ave., Chicago.

Du Pont Plans New Plant

In order to supply the increasing demand for Dulux, its recently developed finish, E. I. du Pont de Nemours & Co. has announced that it will construct a new plant at its paint and varnish factory in Philadelphia. The decision to erect this plant is due to the fact that the public demand for Dulux has been unusually marked during the past few months. This new product has now been thoroughly tested out under all kinds of conditions and is available for house painting in addition to the industrial needs which it has been heretofore supplying. The new plant will be most modern in equipment and construction. The plans call for a three-story and basement building to be approximately 155x68-ft. The total cost for the new plant will be $350,000.



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Maple Wood Finishes

by J. K. COOPER

MAPLE and imitations of maple have become very popular for certain types of furniture and wood novelties. Gum, tupelo, basswood, birch and a few other woods can be stained to closely resemble maple. While some of the articles made of maple are finished natural or in "light maple," others are mildly stained and finished in various tones varying from old yellow to the natural browns of oak and walnut.

Honey color is a very popular shade; it is nearly like the real old amber or golden color which many Early American pieces acquired by age.

An old, clear, oil-finished piece of maple that has aged for years generally takes on a beautiful golden color. A few pieces are found which have nearly a cherry red color, but these were evidently stained when originally finished (or when refinished), as the natural finish would not get that way from age.

A piece of maple finished today, when placed along side one of the old pieces of natural finished maple, usually shows a mildly brown shade rather than the golden color characteristic of aged natural finished maple. I have found that in matching new pieces with old, a little aniline red mixed in orange shellac, and varied according to the color wanted, makes a real golden color. This also makes a very good stain—at little trouble or expense.

Mix your dye and shellac, and thin same to suitable consistency—which should be thin. Apply this stained shellac in a thin coat, and when dry, sand or steel-wool the surface. Recoat the surface with the same mixture again, only using it a little thicker, which makes it a "toner" and evens up your wood color.

Curly maple and birdseye maple must have a first class cabinet finishing job. If it has been hand scraped, many rough places will be found where the scraper has jumped and dug holes into the wood.

Nearly every manufacturer of stains has made up stains suitable for finishing maple. There are all kinds of stains according to the piece of work that is being done—acid stains, water stains, penetrating stains and uniforming pigment oil stain made especially for soft woods to uniform the soft and hard spots, which also keeps down the cost of the article. Besides the ready-made stains, a finisher can make up various stains of his own, which can be changed to suit his own particular color needs.

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For example here are a few I have used with good results:

Rich Golden Brown

Orange shellac .....½-lb.
Pearlash .....2-oz.
Gamboge .....1-oz.
Denatured alcohol .....2-qt.

For a deeper or redder tone, use dragon blood instead of gamboge.

Early American

Crociene orange .....½-dram
Acid yellow 1-scruple
Water .....1-qt.

A rich brown may be produced by adding 2 scruples of nigrosine jet black.

Rich Yellow

Acid yellow .....½-scruple
Swiss Loutre .....½-scruple
Water .....1-qt.

Brown Shade

Bichromate of potash.....2-drams
Water .....1-qt.

Gray Shade

Sulphate of iron.....1-scruple
Nigrosine black 1-dram

Aged Curly Maple

Pearlash .....2-oz.
Gamboge .....1-oz.
Denatured Alcohol .....½-gal.

For a redder tone add dragon blood.

Aniline red and yellow can be mixed together according to the shade you want. This mixture produces some very attractive effects. Some of the maple is shaded; this can be done with lacquer shading stain—which is probably the quickest on account of its drying characteristics.

As a finishing material, a mixture of orange shellac and waterproofing solution* makes a quick and easy finish. (Mix equal parts, or vary this proportion according to the wood being finished—and according to your experience.) Orange shellac keeps the golden color in the maple and adds a richness to the finish. The waterproofing hardens and also bodies quickly, and rubs and wools easily. Three coats of this material will make a first class job.

Of course, the finisher can use lacquer, varnish, or whatever finishing material he may desire, but the final finished surface on this reproduction of old maple should be rubbed as "dead" as possible, then liquid waxed and polished as fast as the wax is put on; there is also a special antique wax* for this purpose. The beauty of the wood is brought out by the proper staining, but this should not be in dark shades.

*Name of manufacturer on request.

Every year new home makers are coming into the market to buy fixtures and furnishings for the home; they come in with exceedingly different ideas than those to which we sometimes attach our enviable goodwill.

Glyco Appoints Chemist

Chas. S. Glicksman, who majored in chemistry and physics at the University of North Carolina, has joined the laboratory staff of the Glyco Products Co. Inc., Bush Terminal, Brooklyn, N. Y. He will devote most of his time to special emulsion work for the paint, leather, food, cosmetic, textile, and rubber industries.

Denny, Hilborn & Rosenbach News

Denny, Hilborn & Rosenbach, Inc., 234 N. 12th St., Philadelphia, Pa., announces the appointment of Mr. W. H. McManus as manager of its Chicago Sales. Mr. McManus is located at 82 W. Washington St., Chicago, Ill.

This company also announces that Mr. J. J. K. Hilborn is no longer connected with this corporation.

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Wood Stains and Fillers

By R. C. MARTIN

Revealing practical information about some of the later types of stains and fillers and explaining how to use them effectively in connection with sealers, undercoats and finishing coats in the finishing of wood surfaces by modern methods.

RECENTLY there has been introduced a type of staining material for use on wood surfaces, which, I believe, will aid tremendously in the prevention of certain factors that heretofore have been considered as more or less serious problems in this industry. The causes of film ruptures in the form of checking, cracking, shrinking, blistering, pinholing, etc., can be partially attributed directly to the types of stains or fillers employed in the primary coating applied on the wood.

It is a known fact that wood has a decided tendency to absorb moisture, as it is constructed of a series of minute cells which are of a porous nature and belong to the cellulose family. When the wood absorbs moisture the mass will swell, and as the mass is force-dried the wood will shrink. It is, therefore, quite essential that the wood be given extensive treatment before the application of coating materials, in order to prevent any possible rupture or unsatisfactory condition that may prevail. This is of vital importance for a satisfactory, lasting finish. The moisture content of the wood must be closely controlled. Conditions in the storage of wood in the white, as well as in the form of finished products, must also be considered. Then too, finishing room conditions should be closely controlled.

These preliminary statements are necessary to bring out my point of view when discussing the theory that the newer types of wood stains have a decided advantage over the straight water or oil stains so frequently used in the past. Experienced finishers know that ordinary water stains should be allowed to dry at least 12 hours in a controlled finishing room before the application of filler and subsequent coatings. Of course, water stain, when applied to wood, has a certain penetrating property which gives very desirable results. However, the water absorbed by the wood adds to its moisture content and, if the controlling conditions in the finishing room are not satisfactory, any one of the previously mentioned finishing film ruptures may make an appearance. Often rapid-finishing schedules do not permit a satisfactory drying period, or control of the moisture content of the wood; thereby causing trouble later.

These ordinary water stains also raise the grain of the wood appreciably, making necessary either a sanding operation to smooth the

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surface or the application of a wash coat of shellac or lacquer sealer to further stiffen these minute wood fibers. This treatment permits a clean effective sanding operation.

Sometimes the following conditions are responsible for trouble: A shellac coat is applied as the first film-building coat and perhaps it is put on over stain or filler that has been applied too heavily, especially where the grain shows appreciable depth; this shellac coating (classified as a varnish, being a cold cut of gum dissolved in alcohol, etc.) may, in puddling or heavy application, lay in these deep impressions and, as the film dries, leave a coating that in subsequent applications of lacquer materials will cause the active solvents to reopen the casing of shellac, thereby causing upheaval, pinholing, or blistering of the film.

Shellac Coating

As an example, the shellac coating is permitted to lie in the pores of the wood as an encased film, of which the outer section appears dry and hard, while if these "valleys" or "bubble appearing globules" were to be broken, they would be "wet" inwardly and probably contain captivated air.

As the succeeding applications of lacquer are applied on an improperly-dried shellac coating, the solvent action will penetrate this outer shellac deposit, releasing the free air which later will be forced to the top of the coating film, and cause some of the conditions previously mentioned. Please understand that this isn't any criticism of using shellac, because satisfactory results can be obtained when a wash coat of shellac is properly applied.

Today, in the rapid production schedules evolved through the use of lacquer materials, a satisfactorily finished piece of furniture can be completed in one day, while formerly, the available finishing materials necessitated at least three days.

Applying Stains

The newer developments in wood stains and fillers have, of course, made this feat possible. The stains of recent introduction can be applied by brushing, dipping or spraying. The latter method should be used wherever the production schedule will permit. If stain is applied by the spray method, it should be applied by a workman experienced in the use of spray guns, because it is necessary to apply the material evenly.

Only about 15-lbs., of air pressure is needed to apply stain—in other words, just enough air to atomize the material. Two light coats may be necessary—the first being applied across the grain; the second with the grain. This gives an even application. Of course, in spraying there is always some loss through overspray, but this is more than compensated for by the rapidity of staining as compared to hand brushing.

This type of stain has a marked degree of penetration and dries sufficiently in one hour to be followed by the filler. In some cases, where certain types of woods are being stained, a period of 30 minutes is sufficient for satisfactory drying before applying the filler, but the longer period of one hour is advised.

It is generally conceded, I believe, that the wood should be of about 12% moisture content before applying the finishing coats. If the content is a little over 12%, these newer types of wood stains have a greater tendency to absorb

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a small portion of the excess moisture than a water stain, which adds to the excess moisture content. This is feasible only because of the solvent action of these stains, but this should not be taken too much for granted, and the wood rushed through the finishing process without receiving a satisfactory drying out. The condition of the wood as to moisture content should be on a comparable basis with the atmospheric conditions in the finishing room.

These new stains do not raise the wood grain as do the corresponding water stains, although there are certain species of woods wherein the grain may be raised very slightly—so slightly usually, that the action of filler, or filler and undercoater, or the first coat of clear lacquer will "blend" the slight grain raise to the point where it is unnecessary to resort to sanding.

This type of stain is available in a concentrated form to which may be added a thinner, recommended by the manufacturer, to lessen intensity of the staining. Likewise, by intermixing one or more of these stains the finisher may make his own colors to obtain definite results. Some finishers prepare satisfactory shading or toning lacquers by mixing these stain colors with some of the clear lacquer used in the finishing schedule.

If a bleaching solution is used, as it may be on certain types of woods (and realizing the water content of such a solution), it is advisable to saturate a rag with a minimum quantity of fast-evaporating thinner, and rub this on the bleaching solution to permit the possible absorption of some of the excessive added moisture. This is in consideration of a satisfactory preliminary drying period both before and after so doing.

Filler Application

The fillers now available are applicable, as mentioned, about one hour after the stain has been applied. These fillers should be reduced to the proper "applying consistency" with the reducer as recommended by the manufacturer, to procure ideal results. These fillers are applicable by brushing, wiping, or spraying; but for the best results I advise brushing the filler on with a fairly stiff-bristled brush. This will permit a greater degree of real filling in the pores of the wood. Fillers should always be applied across the grain of the wood and worked into the wood pores.

After about 15 to 30 minutes when the filler over the entire surface should start to show a "drying appearance," it should be wiped by hand with a pliable, coarse-textured cloth across the grain, always working the filler into the grain of the wood. Sometimes, in the case of large and "deep" grained wood, it is advisable to apply a second coat of filler in the same manner as just described but working from the opposite side of the panel. This filler should be allowed to dry at least four hours before proceeding with the finishing schedule.

Use Lacquer Undercoat

A lacquer undercoat is usually applied after the schedule has proceeded as described. This material has excellent film-building properties, and I recommend using it because of its compatibility with nitrocellulose lacquers. It is usually of a "flat" appearance and dries as such; however, there is also available a clear undercoater

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which gives practically the same results.

This undercoater may be sanded if desired at the end of 30 minutes. It is easily cut and produces a powdery white deposit on the sandpaper—and it does not gum up the paper. This product is a basic film builder, but it is not necessary, because a coat of the finishing lacquer will give satisfactory results.

Clear Lacquer Finish

Clear wood lacquers, high in solids, have recently made their appearance; in the cheaper grades of furniture finishing, one coat of this type of material, applied over the lacquer undercoat, has been considered sufficiently passable to complete the finishing schedule. This material can be rubbed after three to four hours of drying. Where the finishing schedule calls for a second coat, it can be applied one hour after the application of the first coat and rubbed after drying four hours; or one may apply a coat of flat wood lacquer (of which several are available in the desired sheen) as the last application.

These high-solid, clear wood lacquers are of a spraying consistency on the basis of about 45 to 50-lbs. air pressure. They are quite heavy (by weight and "feel") and can be reduced to spraying consistency, if necessary, with the manufacturer's recommended reducer.

Seamless Metallic Tubing

A seamless, flexible metallic tubing, which it is claimed will find an important place in practically every industry, has just been placed on the market by the Bendix Aviation Corporation. The hose is seamless from the tip of one fitting to the tip of the fitting at the opposite end because the fittings are brazed or welded, forming an integral part of the hose. This construction prevents leaks developing in the hose and breaks occurring between the hose and its fittings, as frequently happens with interlocked or locked-joint metal tubing.

Made of special bronze alloy seamless pipe, the hose is corrugated in round-thread single lead deep wall form and does not contain welded, brazed or interlocked joints. A protective casing, braided from copper is designed to cover the hose with either one, two or three layers, depending on the pressure the hose must withstand. As a protection against mechanical damage to the braid covering and to distribute the flexing action, the manufacturer recommends use of an interlocked, unpacked galvanized steel casing over all.

Reclaim Wiping Rags. Wiping rags, polishing cloths, wool and cotton waste, covers, and any other textile fabrics used in industrial and manufacturing operations can be profitably reclaimed with economical equipment now available. The material to be reclaimed is first put in a power washing-machine and washed in a solution containing common soda or some similar low-priced chemical. After being washed, the material is placed in an extractor or centrifugal, where surplus water is removed. The final operation is the drying.

Nichols' Coast Office Moves

The Nichols Products Corp., of Boston, Mass. (builders of oil and gas fired heating equipment) announces removal of its Coast office to 414 Lewis Bldg., Portland, Ore. The Coast office is managed by Mr. E. G. Drew.

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Questions and Answers

Fire Door Finishing

We would like some information on the subject of filling materials for such articles as hollow metal doors and other sheet steel work. What we have in mind is something to smooth over the scratches and fill up dents caused by assembly and also to smooth off the welding roughness, so that finishes can be applied afterwards and show a perfectly smooth surface. We are using various combinations of whiting, varnish, turpentine, etc., none of which are entirely satisfactory.—T. C. T. T. Mfg. Co.

I suggest that instead of "putting on" you "take off." Use a polishing wheel of fine texture, stationary or portable, to smooth off lumps and big scratches, etc. If the proper wheel is used, little filling if any will be needed.

There are fillers on the market that can be sprayed on and which require little or no sanding. The kind of filler best suited for your work will depend on whether your finish is to be baked or air dried. If the finish is to be baked, use a filler that will bake, and bake it harder (or at least as hard) than you bake your color; otherwise, the finish may check.

Air drying putty can be made or purchased, also lacquer putty; it is applied and leveled down with a broad knife. When dry, the putty is sanded down to the iron at all high places. The same can be done with bake putty.

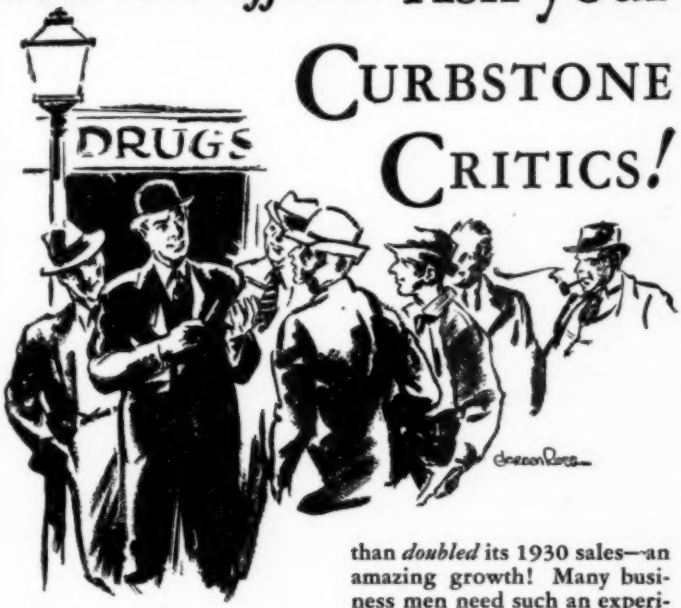
A dent is a "ticklish thing" to deal with, owing to the fact that, especially on cold-rolled steel, it is too smooth for the filler primer to stick to. A little scuffing with emery cloth or an abrasive wheel will give it a rough surface to which filler will cling. Where possible it is best to pound the dent out smooth, with a smooth hammer.—Fred Mannhardt.

Does Lacquer Ever Taint Silverware?

A complaint was brought to me by my production manager after I had lacquered all his silverware, except the knives and forks which had been replated with silver and rough buffed instead of burnished. His complaint was that when using the knives and forks with hot foods they imparted a metallic taste. He has done everything possible such as washing them in hot water and ammonia and other solutions, but he insists that the metallic taste is still there.

He has the knives and forks in a drawer that has been lacquered,

Take time off and Ask your CURBSTONE CRITICS!



E. L. CORD, the sensationally successful young president of Auburn, delayed his O. K. on the plans for his 1931 car. Then he went driving—all over the United States. He just talked automobiles. What did average people want? What price? What colors? What improvements?

Then he came back and made the factory produce the new features that the *public* wanted for 1931.

And 1931 showed a bigger increase in his business than ever before! In that severe depression year, Auburn more than *doubled* its 1930 sales—an amazing growth! Many business men need such an experience. Perhaps *you* do! Perhaps your *finish* is not right! Maybe it should have new clarity, vividness. This new finish may turn the tide for *you* in 1932!

Look into it! Call in the Egyptian Lacquer man. He has practical *sales* ideas. They often cut costs, too. "Egyptian Lacquer" is in the following phone books:

Atlanta	Cincinnati	Kansas City	San Francisco
Boston	Cleveland	Los Angeles	Seattle
Buffalo	Dallas	Philadelphia	Spokane
Chicago	Detroit	Portland, Ore.	St. Louis

THE EGYPTIAN LACQUER MFG. CO.
90 WEST STREET · NEW YORK CITY

and is of the opinion that the lacquered drawer might taint the knives and forks. Do you think this is possible; also do you think candy lying in a lacquered silver dish might taste of the lacquer?—C. H. P.

I am of the opinion that the lacquered drawer would not cause the knives and forks to impart a metallic taste to hot foods. In the first place, any taste imparted by lacquer would not be metallic in nature. In the second place, it is quite likely that the lacquer in the drawer is of low quality and would therefore undoubtedly be thoroughly free from odor by the time it reached the user.

As to the lacquered silver dish tainting candy, this is practically impossible—that is, if it is an open dish. Sometime ago we had an experience indirectly with a candy company. A wooden candy box was lacquered on the inside and found to taint the candy when not allowed to sufficiently dry. However, when given ample drying time this did not occur.

I suggest that the source of the trouble be found with butter, which as you probably know, is most receptive toward odors.—C. L. S.

It is my personal opinion that the peculiar taste which this man noticed on his silverware is in no way caused by the fact that the silverware was kept in a lacquered drawer. I am rather inclined to believe that it is probably imparted by small traces of the plating acid or solution which is contained in the pores of the metal itself. I am not a plating expert, but it may be that platers of dinnerware use a slightly different plating bath than that used for other silver plating work, in order to eliminate the possibility of a metallic taste.

Whether candy lying in a lacquered dish might taste of the lacquer or not depends mainly upon how old the lacquer is before the candy is placed in the dish. If all of the solvents have not evaporated from the lacquer film, no doubt some of them would be absorbed by the candy, but if the lacquer is old and hard, there should be no trouble.—M. J. P.

Cleaning Auto Bodies

We have been informed of a method called the "———lite Process" for cleaning automobile bodies. This cleaner is sprayed cold on the metal body, allowed to dry, and then brushed off. It is claimed that no further cleaning is necessary before painting and that the regular system of painting can be followed without any injurious effects.

We understand that some lacquer manufacturers will not guarantee their lacquers on bodies cleaned this way, as they claim lacquer will not hold over this process of cleaning. Can you enlighten us on this subject?—T. S. & S. Co.

In regard to a metal cleaner that is sprayed on metal bodies, let dry then brushed off, if the man in charge of the cleaning department is absolutely sure the bodies are clean—that is, if the cleaner used is removed, as well as all rust, grease and acid—I do not see why paint could not be applied successfully after this method of cleaning. However, I would not recommend this method of metal cleaning where a large

For Wheels, Fenders and other Metal parts

—an air drying enamel tack free in 45 minutes . . . a bake type in one hour at 200° F. . .

Rezyls assure better results, faster schedules in your finishing rooms. Rezyl-type finishes are opaque to destructive ultra-violet rays and do not break down on long exposure to sunlight. When finishes are formulated with Rezyls, toughness, elasticity and adhesion actually increase with exposure.

In both air drying and bake type enamels, faster drying is obtainable. Gloss is superior to most finishes. Durability on weather exposure is characteristic of all Rezyl-formulated finishes. Rezyls are available in a variety of types differing in physical properties. All of them can be used to advantage in finishing wood, metal, paper, leather or fabric.

FREE—*An Important Booklet* containing test data and basic formulas on Rezyls. When writing mention name of your lacquer maker.

Industrial Chemicals Division

American Cyanamid Company

535 Fifth Avenue New York

AMERICAN CYANAMID COMPANY, 535 Fifth Avenue, New York
Send the booklet, "Rezyls" and other information on
☐ Air Drying Finishes ☐ Baking Enamels ☐ Lacquers for use on:
☐ Furniture ☐ Textile ☐ Clear ☐ Wood
☐ Industrial ☐ Automotive ☐ Pigmented ☐ Metal

Name _____

Address _____

For attention of _____

production is run, as there are too many chances of the acid not being thoroughly removed by brushing off.

Personally, I prefer the method of applying cleaner by brushes made especially for applying cleaner. These brushes work the cleaner into every scratch, removing every particle of rust. Use No. 2 or No. 3 steel wool; also a good emery cloth, scouring every part of the metal. Then thoroughly steam clean the bodies using 150-lbs. steam pressure. This absolutely neutralizes all acid, leaving a nice clean surface free from film.

Metal cleaners that are brushed off usually leave a film that cannot be painted over successfully. Metal cleaners that can be brushed off, using neither hot water nor steam, would not be severe enough to remove rust from metal in a satisfactory manner. Lacquer manufacturers are very likely right in their opinion.

Body painting is an engineer's game and any one in doubt should consult their staff of engineers; they are generally right. I have seen 100 bodies per hour cleaned, using two of the best metal cleaners* I know of; also using as much as 2500 gallons of lacquer* during a 24-hour period, over this method of cleaning and with almost perfect results.—Jack Davis.

Automobile Top Dressing

Relative to your recent inquiry regarding the tendency of asphaltum-base top dressing (for automobiles) to turn brown, I wish to state that natural asphalt is brown or brownish-black in color.

There are several grades of the material on the market. I have conferred with one of my technical associates on this matter and that grade of asphalt known as "Gilsonite," which is the purest natural bitumen obtainable, is our recommendation for use in this type of product. However, even this material, upon weathering, is subject to breaking down into a brown powder. A further modification of the product to include a percentage of carbon black, we believe would tend to off-set this browning tendency.—E. W. C.

Dip-Finishing Fish Baits

We would like information on methods, materials and equipment on finishing artificial fish baits made from wood.—F. F. T. M. Co.

I suggest the dipping method for finishing these fish lures, a dip finishing machine for equipment, and the regular dipping enamels for materials.

With a dipping machine you can enamel in the one-color 2-coat work all kinds of lures at the rate of from 25,000 to 35,000 per day, and where an extra dip is required to change the color of the head or any portion of the lure, the extra coat is put on at the rate of 50,000 per day, so that you would be able to finish complete all kinds of lures at the rate of at least 10,000 per day, and in a great many patterns you can finish 15,000 per day.

The work is all done by four or five girls or boys requiring four to apply and remove the lures from the sticker boards and one to operate the machine.

I don't know just how familiar

*Name on request.

you are with the problems encountered in dipping, but there are one or two points that may help you further. In dipping lacquer, it has been my experience that some concerns will recommend a special dipping lacquer with a special dipping solvent, which is somewhat slower drying than their regular spray lacquer and spraying solvent. This is okay, but not always absolutely necessary. In any instance, the dipping thinner must be used, because it is a slower drying thinner—that is, the initial drying is slower, which affords a more ready flow off the article that has been coated.

Another point is that in immersing the article to be coated, the immersion should be done slowly enough that the article itself does not take any air with it when it goes into the lacquer. If it is immersed too quickly the finish sometimes bubbles and will show streaks because the lacquer cannot get to the article to be coated because of the presence of the air on the surface of it. Also, the article to be coated should be withdrawn slowly to get the best film, since if the article is withdrawn too quickly the lacquer has a tendency to flow faster and to leave bare spots. (Bare spots may also be due to too thin a consistency of the material.) These are two of the reasons why I recommend using a mechanical dipping machine for dipping fish lures; mechanical dip finishing insures a uniform finish on all fish lures, since the correct and uniform speeds are used in dipping the article.—L. M. R.

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WATEROIL STAIN

Because it is fast to light. Does not bleed or fade, will not raise the grain. Covers more area per gallon. Produces a TRUE WATER COLOR.

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 # 1900 WATER OIL RUBBING OIL eliminates entirely the bluish bloom or haze. No finger marking or oily surface.

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STAR SHELLAC STICKS. New Prices. Write us for information.

Quick Drying Fillers, Lacquer Shading Stains, Finishing Waxes, Lacquers, Sealers, Drawer Coaters, etc.

"Unquestionable Quality"

WOOD FINISHING SUPPLIES

V. J. DOLAN & COMPANY, INC.

1830 N. Laramie Ave. Chicago, Ill.

New Materials and Equipment

Pearling Lacquer

The Egyptian Lacquer Mfg. Co., Inc., 90 West St., New York City, in announcing its Pearling Lacquer says:

"Here is an industrial finish so progressively new—so distinctively different that it will be used successfully by many manufacturers to influence the sale of their products.

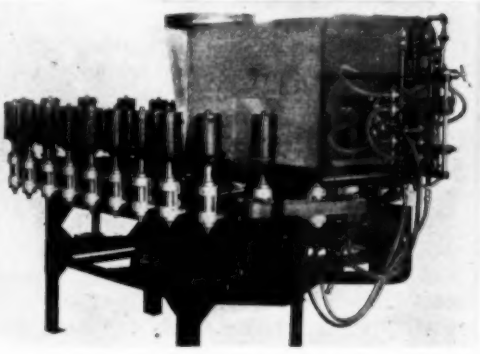
"A striking example of its use to influence buying is found in the automobile industry. At the 1932 Automobile Show in New York City the motor cars that were finished with Pearling Lacquer were an outstanding attraction; the value of this new finishing material as a selling factor was conclusively demonstrated.

"Heretofore, the use of Pearling Lacquer has been confined to the manufacture of imitation pearls and mother-of-pearl effects. Now with its acceptance by automobile manufacturers as a practical finish, industry is recognizing it in a rapidly widening variety of uses and fields. Manufacturers, whose products face highly competitive sales conditions, are adapting the pearl lacquer finish to their own production . . . in order to set their products apart from competition.

"There are thousands of products that can profitably employ the Pearl Lacquer finish—yours may be one of them!"

Automatic Spray Machines

In the accompanying illustrations are shown the automatic golf ball finishing machine and an automatic generator finishing machine. The golf-ball machine is not entirely automatic in its operation but it requires only two



Finishing automobile generators on automatic spraying machine.

For
STAINS, FILLERS and POWDERS

A surprising number of manufacturers whose lines won places in the public's favor in 1931 - are regular users of J-W-F products. As originators and developers of successful colors for furniture - we stand ready to help other manufacturers to meet this vital sales problem. Give your furniture the merchandising advantage of "Jamestown Colors" - write for detailed information today.

JAMESTOWN WOOD FINISHING CO.

Plant and Executive Offices - Jamestown, New York
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Two New Colors

4911 Vermont Maple — 4896 Aspen Wood Acid Stain Powders

Produces almost exactly the antique color and tone of antique satin maple, found only in the original aged Vermont Antique Maple Pieces.

A beautiful clear amber brown, harmonizing splendidly with walnut and other contrasting colors. Used on overlays and drawer fronts.

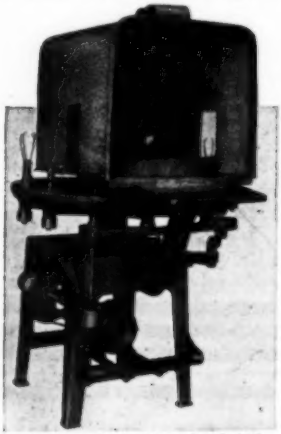
The newest shades for modern designs
Write for trial samples today

THE GILBERT SPRUANCE CO.

OFFICES — WORKS — LABORATORIES

Richmond and Tioga Streets Philadelphia, Pa.

operators. One stands in the rear and puts the golf balls upon the spindle which holds them in place, then takes off the finished golf balls as they come back to him. The second operator stands in front of the machine and sprays the balls with a hand operated



Semi-automatic machine for finishing golf balls.

spray gun. This outfit can be operated by unskilled labor and is much faster and more economical than the old golf-ball painting method.

The other illustration shows a generator-finishing machine. This outfit is entirely automatic and requires no spray operator. The generators pass under a group of DeVilbiss automatic spray guns which spray the finishing material over the product in the required manner. Production costs are lowered and labor charges are negligible. The outfit shown was especially designed for large automobile manufacturers.

The automatic finishing of products has been widely accepted in practically every industrial field. A great many of the multitude of problems which are constantly facing manufacturing concerns are being met by automatic spray equipment. Consequently, The DeVilbiss Co., Toledo, Ohio, maintains an extensive Research and Engineering Department, which does nothing but design special automatic spray equipment for manufacturers.

It is impossible to perfect one machine which will fit every need. It is essential that each machine be designed for its specific duty. Therefore, with this department, The DeVilbiss Co. feels that it is in a position to meet the demands of any manufacturer who must finish his product with paint, lacquer or any other similar coatings, with speed and economy.

Apex No. 15 Spray Gun

A new spray gun embodying several unusual features, has just been placed on the market by the Crown Spray Gun Mfg. Co. of Los Angeles, Calif. Known as the "Apex No. 15," the new gun is designed primarily for industrial production work, such as automobiles, furniture, airplanes and other finishing work where high quality of workmanship is paramount.

Among the advantages of the new gun, the following are noted by the manufacturer: Self-aligning spray head with fixed air cap that does not move when the fan nozzle is turned, thus eliminating wear and insuring long life of this important part; trigger adjustment that provides a variable width of spray; an air control on the gun that may be easily adjusted while operating the gun; one-piece fluid plunger assembly for speed in cleaning the gun; two-point hand support on the

by all means *INVESTIGATE* these new material tanks — developed by *BINKS!*

Illustrated literature describing these new pressure material tanks in detail is now in preparation. Executives and purchasing agents are invited to request it—also new, complete general catalog.

and now—an improved and simplified pressure material tank, designed by Binks' engineers whose recent achievement, the Thor Model 2 Spray Gun, took the spray finishing world by storm.

Made of pressed steel throughout, (excepting the heads on the smaller sizes which are semi-steel) these new tanks are galvanized inside and out. An improved type of clamp eliminates the troublesome protruding lugs on the cover and exerts a uniform pressure directly on the gasket insuring an air-tight seal.

All sizes except the 2 gallon are equipped with a built-in agitator and hand crank, the latter being instantly removable when it is desired to attach an air or electric motored mechanical driver.

A new air control unit assembly eliminates the network of piping formerly required and mounts into a single tapped opening. Bottom outlets on the 30 and 60 gallon sizes permit more efficient operation.

A careful check of these improvements will make apparent their many advantages.

BINKS MANUFACTURING CO.

3001 Carroll Avenue, Chicago

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Makers of Everything in Spray Finishing Equipment

grip of the gun for comfortable working balance; and exclusive new hand container assembly that allows removal of the suction cup with one hand by a half turn movement, and an air valve construction that has proven entirely leak-proof and free from service requirements.

New Polishing Wax

A new easy polishing wax has been developed by the E. I. du Pont de Nemours & Co., Parlin, N. J. The product is described as a wax emulsion, and not a mixture of wax with a volatile vehicle. It has an appearance similar to mayonnaise or salad dressing, being very light in color and having the consistency of a creamy semi-paste. Because of the complete emulsification of the wax, it does not settle as is usual with liquid wax. Other advantages include the adaptability of the du Pont product to use on light and delicate finishes and white enamel, and ease of polishing, due to the absence of "drag" and the fact that it is necessary to allow the wax to stand only a short time before polishing. Hundreds of formulas were given laboratory and service tests before the one for easy polishing wax was adopted.

Swivel Knife

The Paasche Airbrush Co., 1921 Diversey Parkway, Chicago, Ill., announces a swivel knife for quickly and easily cutting frisket masks and stencils. It is designed for free-hand use and enables the artist to cut straight or curved lines with ease.

The blade rotates smoothly, insuring ease of control. It can be

Follows curved or straight lines.

instantly locked for straight lines or loosened for irregular curves. The blades are of hardened steel, honed to a razor edge. Blades are removable and can be easily replaced by hand.

Solvent Washing Machine

An improved design of the solvent washing machine, known as the vertical type, is being produced by the Rex Products & Mfg. Co., Detroit, Mich. The vertical type solvent washer is a short coupled vertical machine, and is recommended where floor space is very limited, or where it is desired to permit the operation of the machine by only one operator. One person is able to place the dirty work upon the conveyor, or fixtures, and then remove the clean work, which is returned to the operator.

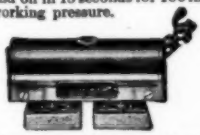
The cleaning solvent used in

EVERY ARTICLE FINISHED

in less time at less cost!

Paasche AIRPAINTING UNITS

Pressure Feed Tank—cover on and off in 15 seconds for 100 lbs. working pressure.



Airrubber — 1600 hand strokes per minute.

Four new stripers adaptable to every striping requirement.

SEVENTY-TWO well known manufacturers have cut finishing costs from 15% to 75% the past year with Paasche Airpainting Equipment, saving hundreds of thousands of dollars in actual cash! Their products range from musical instruments to tug boats, from golf balls to furniture.

No matter what your product may be . . . regardless of size, shape, or weight . . . if it needs finishing during the manufacturing process, Paasche Equipment does it in less time at less cost.

Ask for facts, in figures, and pictures, of actual savings made with Paasche Equipment in your own industry.

Paasche Airbrush Co.
1921 DIVERSEY PARKWAY
CHICAGO, ILLINOIS
Branches in all principal cities, Canada and foreign countries.

Guarantee Savings PAINT WITH AIR Paasche

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IF-3 McLaughlin

Alaka Flat Wood Lacquer No. 810
helped this world-famous arms manufacturer sell more guns.

This happens to be one of the most important gun-makers in the country* with a plant covering more than a square mile. Experience had taught this firm that hunters prize a gun-stock with that dull-rubbed, velvety smooth finish. So they used a flat wood lacquer on their gun-stocks, and it looked all right. But whenever a hunter returned from duck shooting, this gun-maker heard plenty about the ugly, shiny blemishes all over the gun-stock. The lacquer had lost its flatness. When we were called in we told them that no amount of handling could make Alaka Flat Wood Lacquer No. 810 lose its flatness. That proved true. Now their business on rifles and shot guns is showing a healthy increase. Write for a sample can of our No. 810.

**Name on request.*

LACQUER & CHEMICAL CORPORATION
Makers of ALAKA Lacquer

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Sensational
New SILVER Finish

PURITAN SILVER PASTE

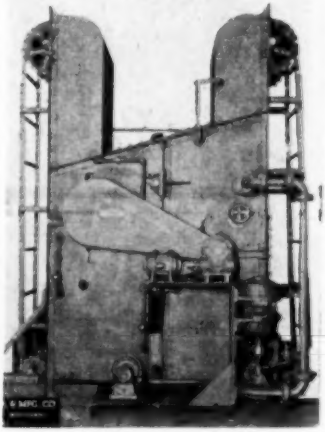
For Casket, HARDWARE, TOY and METAL INDUSTRIES. Extreme fineness, brilliancy - - can be used with varnish, liquids or lacquers, for spraying, dipping or brushing. Entire new principal of manufacture.

Comes in several shades of silver. We can match any shade - - send us your sample. If you are looking for a smooth NEW FINISH write us for samples.

OTTO A. BOTH CORPORATION
50 Hartford St. Boston, Mass.

***SILVER, ALUMINUM and BRONZE POWDER FINISHES in over 100 colors.**
Varnish Bronzing Liquids.** ***Clear Bronzing Lacquers.

the machine is known as Perm-A-Clor, which is non-explosive, non-inflammable, is permanent in quality and acid free in both liquid and vapor form. It is used in the machine illustrated, the work being placed upon the conveyor, with or without fixtures, at the right of the machine, and then passes downward into the machine between powerful streams of boiling solvent striking the work at



"The machines are designed and adapted for any particular kind or class of work or cleaning."

all directions at a pressure of 35-lbs. per square inch. The work and conveyor then pass over and upward permitting the work to drain, and then it passes through a rinse of distilled, hot solvent, after which it passes upward and leaves the machine clean and dry. The work may be removed from the conveyor at the left of the machine or pass under the machine and return to the operator for removal.

After the solvent in the pump-

ing chamber has been contaminated with an accumulation of oil and foreign matter, the flow-back pipe from the rinsing chamber is shut and the distilled solvent is drawn off into a reserve tank until all of the solvent in the pumping chamber has been distilled or evaporated, leaving only a sludge and the accumulation of dirt in the pumping chamber. The dirt and oil is then removed and cleaned out of the machine by the removal of a plate on the pumping chamber. After the cleaning, the plate is again fastened to the machine and the clean distilled solvent is drained back into the pumping chamber from the rinse and reserve tanks. The machine is then ready for operation with clean solvent.

This method of cleaning, together with the condensers at the openings of the machine, keeps the loss of solvent at a minimum.

The process is most suitable for cleaning zinc or lead-coated metals, aluminum die castings or soft metals which are affected by ordinary alkali cleaners, as well as removing lubricating oils from machined, stamped or quenched parts, or buffing compounds, before painting, lacquering, enameling, plating, vitreous enameling or other surface coatings.

Teal Cloth—Top Fabric

Many smart new Teal cloths are being shown on the 1932 automobiles now being displayed in the automobile shows and seen on the streets, according to the Fabrikoid Division of the du Pont Co. This material was developed to meet the demand for a high-grade top fabric of attractive appearance for use on models of open and closed cars, and its acceptance has been widespread. Everbright Pontop, developed especially for closed car decks, continues to be popular wherever a rubberized black material of a high luster is needed.

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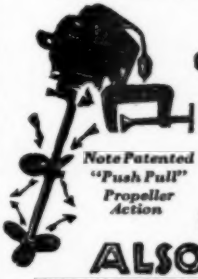
EXPLOSION-PROOF ELECTRIC MIXERS

Clamp to *any* tank and mix *all* liquids



MIX QUICKER

COST LESS

LAST LONGER

ALSOP ENGINEERING CO.

39 West 60th St. New York

Here's The Thinner to Use

For Dipping Spraying or Brushing

WORKS equally well with Paint, Varnish, or Enamel. Its high solvency prevents separating, jelling or thickening. Because of its adaptability, you need carry only one thinner in stock. Sunoco Spirits dries evenly and completely—leaves no greasy residue.

SUN OIL COMPANY

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Producers of Blue Sunoco Motor Fuel

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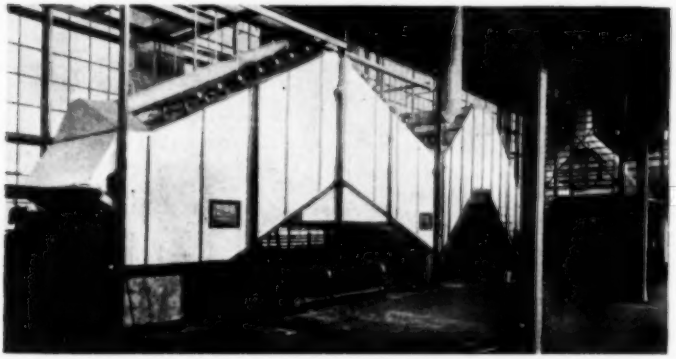

Interesting Examples of

Ovens and Conveyors

In Industrial Bake-finishing Operations on Electric Parts and Bed Springs

by PHILIP KRIEGEL

THE use of oven and conveyor equipment in the manufacture of electrical products is becoming increasingly far-reaching. Hundreds of ovens are in daily operation for baking insulating varnish on motor armatures, coils, stators, and transformers. The baking of japan or enamel finish on motor casings, transformer housings, switch boxes, outlet boxes, switchboards, meters, refrigerators, clocks, cold molded products for plugs, sockets, and other products is widely performed in gas-heated ovens. Different methods of heating are employed, depending upon the character of the work to be processed and the type of gas heating system recommended for the particular application and other plant conditions.

An illustration of how gas-fired ovens were applied along with an ingenious system of conveyorization is given in the case of an outstanding manufacturer of electrical products of all kinds. In finishing junction and cut-out boxes, it is necessary to remove all dirt and grease on the metal before immersion in japan, and baking.

Prior to the installation of the complete conveyorized system, the work was cleaned in special tanks, then carried through a rinse and finally dried. The japan was then applied by either spraying or hand-dipping, placed on trays of rack-trucks and run into ovens for bakings. All of these separate operations aggregated considerable time, labor, floor space, and lost motion.

The conveyorized cleaning and baking system immediately produced a striking contrast in performance. This new mechanism embraces a two-strand chain conveyor with cross-bars upon which the work is hung. The conveyor first travels downward into a caustic solution tank, where the oil, grease, or grime adhering on the metal pieces is removed by the agitated chemical. The pieces then travel up, into and horizontally through a rinse tank to remove the last traces of dirt and alkali film. Emerging therefrom, the conveyor carries the work up into a direct gas-heated dryer to remove all moisture.

From the triple-tier cleaning arrangement, the work is moved slowly through a tank filled with japan, slowly withdrawn, allowed to drip over a drain board, which carries the excess japan back into the tank, and conveyed through a bottom heat seal into the oven. There the conveyor makes a number of vertical passes to allow the japanned parts to bake thoroughly, emerging at the other end of the oven to return under the entire operating structure to the original position, for unloading clean, cool finished work and reloading the following batch.

The oven itself is built of sectional, insulated steel panels assembled to give the highest thermal efficiency. The heating system includes pipe burners running across the width of the oven burning gas in a steel combustion chamber which terminates in a series of vertical radiator tubes. The products of combustion flowing through the tubes radiate heat to the oven atmosphere. Provision is made for exhaust of japan fumes through a series of ducts leading to a motor-driven exhauster.

The notable features of the change from the old to the new method of finishing are that where previously eight men were required to clean, rinse, dry, dip, load, and push trucks and watch the oven, now only two men or girls are required to hang the work on the conveyor flights. Dipping and rate of withdrawal of work are entirely automatic, avoiding the waste of japan inherent in hand dipping.

The cleaning, drying, and baking cycles are predetermined, set and automatically regulated. There is no opening or closing of oven doors with the consequent loss of heat and long time for bringing work to temperature. Heat input is thermostatically controlled and uniformly distributed to all parts of the oven and surface of the metal pieces.

Bed Springs

The spring industry, particularly that devoted to the manufacture of bed, cushion couch, or seat springs, long ago came to appreciate the value of oven and conveyor equipment. The kinds of ovens in use today vary from the smallest type of hand loading, direct gas-fired oven for tempering bunches of spring coils through ordinary truck loading ovens for tempering or japanning, overhead

monorail track systems for carrying completely assembled springs through direct gas, indirect gas or externally air-heated ovens, to the fully automatic, completely conveyorized, combination tempering and japanning ovens.

The work varying in size from the smallest couch or seat springs or bunches of unassembled coil springs to the largest bed springs are dipped in japan or colored enamel and permitted to drain. They are then hung on the cross-flights or bars of a sturdy two-strand chain conveyor which carries them through the oven in a horizontal pass, for a definite tempering and baking time, usually at a temperature of about 475 to 525° F., and sufficient cooling to permit ready handling at the opposite end of the oven. Heating is accomplished by a direct gas-firing system through a number of pipe burners suitably placed to give even heat distribution. Automatic temperature control, adequate ventilation and fresh air are always provided.—*Industrial Gas.*

Why Quit Rubbing?

Though we find finishing materials from time to time which have been designed to lighten or even to eliminate the fine sanding and rubbing operations, one cannot help noting that the majority of finishers still proceed on the theory that smooth surfaces in the white and smooth undercoats must come before the smooth and perfect finish, and that the logical way to get them perfectly smooth is to rub them with some fine abrasive and lubricant. With the labor lightened through the use of portable airpowered rubbing machines which can be fitted with sandpaper, emery paper, or felt holders for rubbing with pumice or rotten stone, there is little reason for abandoning a process so essential and so sound.—R.E.

New Flat Wood Lacquer

In recent literature released by the Lacquer & Chemical Corp., of Brooklyn, N. Y., they described their flat wood lacquer No. 810. It is reported that a prominent manufacturer of guns found No. 810 wood lacquer most satisfactory on the gun stocks, as constant handling did not cause the lacquer to lose its flat finish. The company believes this to be a fair test in proving both the durability, quality and permanence of their flat wood lacquer.

Represents DeVilbiss at Wash., D. C.

J. S. Ullmann has been appointed Washington, D. C., representative of The DeVilbiss Co., Toledo, Ohio, manufacturers of air-compressing and spray-painting equipment. He is located at 4000 Cathedral Ave. Mr. Ullmann is familiar with the District of Columbia, as he served it through his previous headquarters in Baltimore.

Atlas Electric Appoints Pacific Coast Representative

Atlas Electric Devices Co., 361 W. Superior St., Chicago, (manufacturers of apparatus for predetermining the resistance of materials to sunfading, weather and washing) announces the appointment as its Pacific Coast representative of L. H. Butcher & Co., 274 Brannan St., San Francisco, with branches in Los Angeles, Calif., Portland, Ore., and Seattle, Wash.

Paint and Varnish Meeting

The Spring Meeting of the American Chemical Society will be held at New Orleans, La., March 28 to April 1, 1932. The Paint and Varnish Division is planning three half-day sessions, Tuesday morning and afternoon, March 29, and Wednesday morning, March 30. The Divisional dinner will be held Tuesday evening, March 29. The Hotel St. Charles has been assigned as the headquarters.

An Announcement to Refinishers

Automotive Lacquers - containing RICHELIEU PEARL ESSENCE are now being distributed and serviced with technical information by:

An additional list will be announced later.

E. I. du Pont De Nemours & Co., Flint, Mich.
Egyptian Lacquer Co., 90 West St., New York City
Rinshed-Mason Co., 5935-71 Milford St., Detroit, Mich.
Valentine & Co., 386 Fourth Ave., New York City

JOS. H. MEYER BROS. CO.

220 Twenty-Fifth St. Brooklyn, N. Y.

IMPERVIOUS

LACQUERS, VARNISHES and ENAMELS

FOR INDUSTRIAL USE

ENAMELS · IMPERVIOUS · IVCO TRADE MARK · PRODUCTS · VARNISHES · LACQUERS

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IMPERVIOUS VARNISH COMPANY

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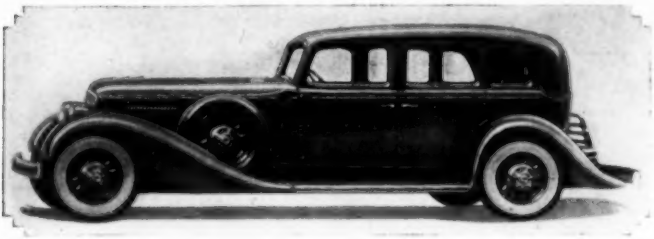


How to use

Pearl Essence Lacquers

for Finishing Automobiles

by MARCUS L. FRUED

Director of Sales for Jos. H. Meyer Bros. Brooklyn, N. Y.

PEARL lacquer is adaptable to any surface, but in order to obtain full reflecting value of pearl essence a smooth surface is necessary, as there is a direct ratio between ability to reflect and the continuity of the surface.

The application and successful completion of a pearl lacquer finish presents no difficulties and practically no departure from present methods generally used in all modern finishing shops. No special apparatus or changes in present equipment are required. With the exception of a slight change in the manipulation of the spray gun when applying the pearl lacquer, all other steps are identical with present-day generally-accepted practice. A special point to bear in mind, however, is that the pearl lacquer coating is transparent and not opaque, and it is for this reason that particular stress is put on the necessity for the elimination of defects before, and extreme cleanliness during the application of this coating.

The transparency of the pearl lacquer film, together with the reflections from the pearl content, is what produces the beautiful depth and iridesence peculiar to this finish alone. Hence the necessity for the absolute elimination of defects before the application of the pearl lacquer, since these defects will be magnified in the same ratio as the depth.

These instructions presume the familiarity of the operator with

"SPOTTING OUT" LACQUER

"Full of Spots" on plated work means many complaints.

"Reducing Spotting Out" means less complaints.

S. S. METAL LACQUER NO. 49

means "Satisfied Customers."

Comparative spotting and weather tests to determine the real merit in this Superior HARDWARE LACQUER are invited.

MAAS & WALDSTEIN COMPANY

Executive Offices and Plant

430 Riverside Ave. Newark, N. J.

Chicago Office & Warehouse
1115 W. Washington Blvd.

Los Angeles Office & Warehouse
2416 Enterprise Street

PRESDWOOD AND CELOTEX FINISHES

Four years of careful and intensive research have gone into our perfected system of lacquer finishes for Presdwood and Celotex.

These extraordinarily adaptable surfaces are becoming more and more widely used in industry. Their finishing presents certain definite problems - we have the answer.

Makers of tile, cabinets, boats, toys, refrigerators and any other industrial production utilizing these boards, will find it profitable to consult us.

Write for our new descriptive bulletin

THE VARNISH PRODUCTS CO.

CLEVELAND, OHIO

general automotive finishing practice, and are meant to serve as a guide for the experienced man.

PRIMER: Starting with the bare metal, the surface should be properly cleaned and washed with clean thinner and primed by spraying on a thin coat of pyroxylin metal primer, which should be allowed to air dry for ten minutes for thinner to flash out.

SURFACER: A pyroxylin surfacer which has been reduced with an equal part of lacquer thinner properly mixed is then sprayed on the surface in two double-head coats, ten minutes apart, and allowed to air dry two to three hours. Then water sanded with No. 240 sandpaper and finished with No. 320 sandpaper, and rubbing out all scratches or defects. This surface should then be wiped clean.

GROUND COAT: Then apply ground color which is pigmented to the desired color. The ground color must be without defects, as any off color spots or such defects will show through the pearl. The job should now present an even solid color.

PEARL LACQUER: The body is now ready for application of pearl lacquer which should be reduced in the proportion of approximately four parts of pearl essence to five parts of lacquer thinner. This mixture should then be strained through a fine mesh cloth or a fine mesh metal strainer. Constant care must be exercised at all times to keep the material free from dust, lint or foreign substances.

Pearl Essence: Its chief merits are depth of color and brilliance of finish. Being organic there is no danger of toxicity or corrosion. In the finishing of automobile bodies various users have been experimenting, to the end in view of securing results applicable to their particular requirements. In the automobile trade, permanence is a decided factor and when a good quality of Pearl Essence is applied, results show that the method of application herein set forth produces definite permanence

The spray gun, which it is assumed has been thoroughly cleaned, should be such as will produce fine atomization. The manipulation of the spray gun, when applying pearl lacquer, is of considerable importance. Do not hold the gun so close to the work as to cause over-loading. This will result in off-shade streaks. Swing the gun with a short fanning movement making about double the usual number of laps, keeping them close together as when applying ordinary lacquer. It is also advisable that you keep the surface wet.

The idea is to apply a thin even coat that shows no laps or gun streaks. Apply four single coats for medium work, and six to eight coats for fine work, and allow sufficient time for drying between coats.

After the final coat of pearl lacquer has been put on, allow it to dry from six to seven hours and then apply a mist coat of thinner. The surface can then be polished in the usual manner.

Author's Note: I trust that this will be satisfactory for the good magazine, INDUSTRIAL FINISHING, *and if there are any technical questions which readers wish to ask, I will be pleased to answer same.*

Announcing the NEW APEX SPRAY GUN

MADE BY CROWN

The NEW APEX SPRAY GUN with improved cup assembly, an exclusive Apex feature.

The new Apex Spray Gun has brought together the most valued performance features of all spray guns and successfully combined them in a single gun, selling at a moderate price. Every single operating advantage you've said would make the "ideal" gun, has been embodied in the Apex! Ten minutes demonstration in your own finishing department will convince you that no other gun can surpass the Apex for quality of performance and ease of operation. The Apex has: Self-Aligning Spray Head, Instant Round-to-Fan Spray Change, Trigger Spray-Width Adjustment, Air Control ON the gun, radical new Cup Assembly, One Piece Plunger Assembly and other important features. We want to send you complete details, so you can judge Apex for yourself . . . . write

CROWN SPRAY GUN MFG. CO.

1218 Venice Blvd. Los Angeles, Calif.

Boston, 105 Broad St.; Newark, N. J., 1057 Bergen St.; Chicago, 551 W. Lake St.; Houston, 1027 E. 11th St.

Superior Galvannealed PATENTED PROCESS

"Superior Super-Metal" PATENTED PROCESS

Two RUST-RESISTING Steel Sheets Coated with Spelter (Zinc) and Heat-Treated after being Coated. Have Etched Surfaces to which Finishes Adhere Firmly.

Sample and Booklet on Request

The SUPERIOR SHEET STEEL COMPANY
CANTON, OHIO

Division of Continental Steel Corporation — General Offices, Kokomo, Indiana
Plants at — Kokomo, Indianapolis, Canton.

Manufacturers of: Black, Galvanized, Long-Terne and Special Coated Sheets, Roofing and Kindred Products; Billets, Rods, Wire, Nails and all types of Fence. **(133)**

Street Car and Bus Refinishing

Finishing and refinishing of both wood and metal is in the daily routine of work at the shops of the Denver Tramway Co., Denver, Colo. Sanding and rubbing have been practically eliminated from the procedure employed, yet excellent results are achieved both for the appearance and wearing qualities of the finish. A temperature of 75°F. is maintained in the department during the winter, to facilitate drying.

In finishing new woodwork, on the exterior of cars, a lead primer is applied and allowed to dry until the next day. A coat of lead is then put on and scraped in with a broad knife. When this has stood over night it is followed by a coat of sealer and two coats of enamel, each application drying from one day till the next.

New metal on the exterior is cleaned with steel wool and gasoline, primed with a metal primer, given a coat of metal sealer and two coats of enamel, each application standing over night.

Interior woodwork is usually oak. This is given a light oak stain which dries 12 hours. This is followed by a transparent surfacer and two coats of varnish, each coat drying until next day.

Methods of refinishing vary somewhat according to the condition of the surface to be treated, but before refinishing there is always a thorough cleaning with soap and water and pumice stone. Priming and sealing follows, as on new work, with one to two coats of enamel, according to the severity of the damage to the surface.

Lettering is applied with stencils cut from a fiber composition.

Busses used in conjunction with the rail cars are finished in the same way, except for a red belt about the middle of the exterior. This receives a metal primer, sealer and a coat of flat red. Lettering is applied to this with aluminum leaf or chrome yellow, then covered with clear varnish, each application standing over night.

Cane seats are scrubbed thoroughly with soap and water at a tank and bench provided for the purpose; after they are dry they are bleached with a solution of oxalic acid. They then receive a coat of transparent inside varnish.

Pioneer Builders Of Air Heaters

NICHOLS PRODUCTS CORPORATION

12953 Greeley Ave., Detroit
122 East 42nd Street New York

DIVISION OF ROSS INDUSTRIES CORP.

They Wrote Us---

"We have a request from our painting department for one or two additional copies of INDUSTRIAL FINISHING magazine for February. If you can take care of this request it will be appreciated. Thanking you in advance, we are"—THE SEAGRAVE CORPORATION, mfrs. Motor Propelled Fire Apparatus, Columbus, Ohio.

Wood sash and metal parts for the cars are finished in the same way as previously described, and are dried in specially constructed racks for the purpose.

Racks for drying cane seats and the smaller pieces of wood and metal consist of a series of ½-in. metal pins, 18-in. long, inserted in wooden uprights. For larger sash, movable racks mounted on casters, are used. These are 7-ft. high, 3-ft. deep, and range from 5 to 7-ft. in length. Each rack has two drying sections.

Double globe lights are used throughout the department to prevent fire from the breaking of globes.—H. T. Bachman.

Wrinkle Finish Tinting

A wrinkle finish is about one of the toughest enamels on the market today—practically marproof—consequently it is in great demand. Although on many articles it looks best plain, that is in one solid color, there are others on which it would look a lot better if it were skillfully tinted with a little bronze. Some concerns employ this decorative effect, but in all too many cases the finisher literally plasters on the gold tinting or applies it too sparingly. Nor does one need to stick to just gold bronze; there are other suitable tints on the market. Crystal enamels can be nicely worked out too with skillful tinting.—M. F.

The salesmen of our industry have a wonderful opportunity ahead of them to do their share in bringing back prosperity by "selling employment" by the inspiration of modernizing and repair jobs, both in homes and in industrial establishments.

PAISPEARL

The Standard of Quality

A Genuine Pearl Essence

Made by our patented processes which insure ***constant uniformity*** of ***concentration, color*** and ***luster*** —and satisfying results.

"PAISPEARL" is supplied to all leaders of industry in Europe and America where that "beautiful pearl finish" is desired.

PAISPEARL PRODUCTS, INC.
65 Nassau St. New York, N. Y.
Prompt deliveries on any quantity

The Cincinnati Varnish Co., Inc.
[Established 1865]
Division of The Foy Paint Co.
Cincinnati, Ohio
Manufacturers of
DEPENDABLE INDUSTRIAL FINISHES
Varnishes • Paints • Enamels
Japans • Stains • Lacquers
Special Finishes
OUR PRICES WILL INTEREST YOU

Letters

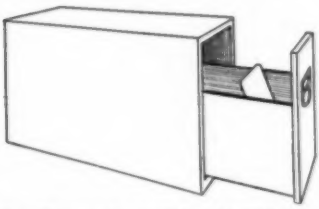
Improved Finishing

The thing that I am mostly interested in at this time, and the thing that has impressed me the most is the fact that the furniture manufacturers and the fixture manufacturers especially are paying more attention to the finish, and I am sure that we will see a gradual increase for better in the finish. For some years everything was speed, and "get that price down," until the poor finishing foremen had no chance of applying a job that would anywhere near compare with the finishes applied several years ago. This condition has caused a loss of many customers for both furniture and fixture manufacturers. I am glad to say that our company has already taken a step to improve the finish even though we did not intend at any time to turn out the grade of finish that some manufacturers did.—E. B. S.

Industrial Finishing File

We are inclosing a blueprint (see illustration) of a small one-drawer cabinet which we have developed for our department supervisors who are interested in filing INDUSTRIAL FINISHING magazines in an upright position so that they may be referred to without sorting through back issues, as has been the case when they are filed flat in desk drawers.

We think you as the publisher of INDUSTRIAL FINISHING, also some of your readers may be as interested as we were in this condition. Being in the filing cabinet business we were able to convert some of our obsolete tools into the proper size and shape to make a very practical cabinet that will file about four years' issues.



For filing copies of Industrial Finishing.

These cabinets are made of steel and finished in an olive green. We were able to produce these at a cost of $4.00 each; and if your readers are interested we could put through another run—providing we could obtain enough orders to make it pay, the above price would apply.

Will you kindly let us have your opinion and if interested a few lines in your magazine would no doubt help your subscribers to solve this filing problem.

Outside measurements of the cabinet are 6¾-in. wide 10¼-in. high and 17-in. long or deep. The drawer measurements are 5½-in. wide, 8½-in. high and 15-in. deep inside, clear, fitted with follower block. The front of the drawer has a combination label holder and pull made of cast brass.—Brown-Morse Co., Muskegon, Mich.

Straw Hat Enamel

The International Harvest Hat Co., St. Louis, Mo., manufactures straw hats of the "straw jimmie" type in large quantities. A large percentage of these hats are finished on the outside only in a red enamel. This enamel must have special properties; it must be of such a nature that it will remain flexible at all times and under all sorts of conditions, it must be light in weight, or rather it must not make the hat unreasonably heavy. It must not become soft and sticky in extremely hot climates under the tropical sun, as a large percentage of these finished hats are shipped to Mexico, Central and South America. This enamel must be glossy and after being applied to the straw, it must resist cracking or crazing when the hat is crushed, and finally it must not make the straw stiff; that is, the hat should be fairly pliable after it is finished. These are rather rigid specifications, but I happen to know of one finish manufacturer that is furnishing the goods for this work.—Confidential.

Advertising; Color; Sales

What brilliant advertisements—the illuminated glass-tube signs—the neon signs. You see them whether you want to or not. Why cannot this idea be worked out to a larger extent on some of our other commodities? It surely would stimulate business to some extent. So many color and harmony schemes can be worked out that it would be simply repetition to describe even some of them here. INDUSTRIAL FINISHING has for years published articles on decorating, color harmony, design,

etc. A careful study of this magazine is money in any paint-user's pocket.

On the editorial page 60 of February INDUSTRIAL FINISHING, two short articles entitled "Car Interior Luxury" and "Color's Effect on the Mind" contain a wealth of information. Remember this: What looks good to the eye soothes the mind. This applies not only to color, but also to form of design and construction as well. I know a person who fairly screams at the mention of green decoration—which proves in one case there is a psychological effect of color. A poorly arranged color layout or decorative scheme can have a "stone-crusher" effect. Products that have attractive design and color effects, which satisfy the eye and command admiration, exert a strong sales appeal always.—FRED MANNHARDT.

If you contemplate bringing your product up to date then consider these few things: First, learn how the consumer wishes to receive your product and how it is put to use. Second, strive for simplicity. Third, if the color of the package is a trademark asset, hold to this if possible because color is one of the easiest symbols for the consumer to remember. Fourth, look to the name of your product; can the name be made more fitting to the spirit of the times?

GOLF BALLS, after being finished are usually marked with colored dots for identification. A special "spotting gun" is on the market for quickly and easily marking dots on golf balls in any desired color and shape, sharply and clearly.

The appearance of the new materials on the market has spurred the producers of the older materials to increased efforts and ingenuity, which have resulted in improved products that have successfully met difficult conditions.

Here is the first authoritative handbook of its kind. PRACTICAL JAPANNING and ENAMELING contains much information that has never before been published. You will find between its covers facts, processes, and formulae that have been considered secret by many japanners.

The author has actually been doing this work for others for many years and he knows whereof he speaks. No one has ever gone into the subject of metal finishing more deeply then he nor has the subject ever been explained so clearly and effectively. This book was eight years in preparation.

Color plates and a multitude of tables and illustrations make the text even more clear and understandable. The volume is bound in harmony with its companions of the Practical Finishing Series and makes a rich, attractive appearance. . . 22 chapters.

Price $3.50 . . . . *money refunded if book is not satisfactory*

Practical Publications, Inc.
802 Wulsin Bldg.
Indianapolis, Indiana

Industrial Finishing
MAGAZINE

Issued fifteenth of each month. Distributed exclusively to executives and foremen finishers in all kinds of industrial plants where finish coats are applied.

PRACTICAL PUBLICATIONS, Inc.
Publishers

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Subscription rates, $2.00 per year in U. S. and possessions; $3.00 per year in Canada and other foreign countries.

Advertising rates on application.

EDITORIAL

Wise Ornamentation

How well-balanced design and effective color decoration can put the much desired sales appeal into modern merchandise is the subject of more thought today than ever before. On this ever interesting subject, one of our friends writes as follows:

"The more I see of trade conditions the more I think of ornamentation—sensible well-balanced ornamentation and its powerful influence in selling goods. Isn't it possible that some manufacturers of various products are not alive to this? How can an article be anything else but a tied-up piece of merchandise or money if it has no sales appeal. Regardless of how beautiful an article is, it lacks something if it is not nicely finished. Take for example, the accessories for interior decoration of automobiles, trains, busses, and ships. If they were finished in a few various tints and colors so as to harmonize with the interior decoration of the compartments or rooms wherein they are placed, that would add to their value and effectiveness."

What Colors Are Popular

With a buyer's market prevailing in practically every manufactured commodity, it's the buyers who exercise the greatest influence in fastening the badge of popularity upon certain colors and color schemes. To find what colors, tones of color, and color combinations are particularly desirable for certain classes of articles, check up the sales and customers' reactions in retail stores where goods of like or similar character are sold or, if possible, find out the results of some investigation into sales records as conducted by someone else in search of such information.

The general public today is the arbiter of color and style in manufactured goods, and when an article meets with unusual success we may be sure that its designer and colorist have correctly interpreted the public's preference.

Selling Industrial Finishes

Commenting on what has been published in INDUSTRIAL FINISHING on the above subject, Mr. C. D. Youngs, a man of long and varied experience in the industry, declares that:

"First of all it is the incontrovertible rule that the salesman of finishes *must* know his products, must be capable of applying them, and must be able to visualize and thoroughly understand the methods of application and production

in each plant he visits. In other words, he must possess sufficient knowledge to command the respect of both the finishing foreman and the plant executives with whom he comes in contact.

"The salesman should not be blatant nor self-assertive, nor should he directly criticize in a 'know-it-all' manner the procedure of the finishing room, even though he does know it could be improved. Tact in suggesting changes will make friends, where arrogance of knowledge will only antagonize prospective customers. Above all, a salesman should not criticize or adversely comment on any shop finisher to such finisher's superiors—unless his frank opinion is requested. Then it is more effective to suggest a willingness to set the finisher right on that particular subject, than to suggest procuring a new finisher.

"A finisher who has spent any length of time in a plant is familiar with the company's shop policies, their systems and methods of handling their work, so a change will cost that plant a certain sum in labor turn-over, even though the new man is a more competent operator. In nearly 15 years of selling industrial finishes I can recall of but one finisher who was not receptive to new ideas, when they were presented in a tactful man-to-man manner."

What Forms "Public Taste"

The crux of the problem of art in industry does not lie in the designer but rather in the sales forces of stores which sell directly to the public. Owners of stores buy what their salespeople sell; manufacturers make what the stores buy; the manufacturer commissions the designer to create what he can sell. Therefore salespeople exercise a potent influence for better or for worse in the creation of design. If you can educate these sales forces to a fine appreciation of beauty, and train children to the same end, you can transform public taste. The salesman selling direct to the public helps to form public taste.

Tung Oil Today

For centuries the Chinese have grown tung-oil trees in a primitive way, and manufactured oil from their fruit by the crudest methods. Yet this oil has been the chief paint oil of China, and has been the basis for some of their finest lacquers, for the waterproofing of their fabrics, and the main vehicle for their paints. From the soot of tung oil has been made the finest "India" ink; the oil has been used for dressing leather, for waterproofing silk, and for oiling and calking junks.

It is only within recent years that we in the United States have learned of the great value of tung oil, but its introduction resulted in a complete revolution in the manufacture of varnishes and certain other important products in the paint and varnish industry. Before its advent, nearly all the better grades of varnish and of products using varnish were made from imported fossil gums and especially treated linseed oil. Rosin or its glycerides (the ester gums) could only be used for adulteration or for the manufacture of inferior grades of varnish. But when tung oil became available, it was quickly found possible to utilize these ester gums in combination with this new oil for making varnishes which were equal or superior in quality to those made from the more expen-

sive imported gums. Quite recently the new synthetic phenolic resins have been developed. These are exceptionally well suited for use with tung oil. These new resins, in combination with the ester gums and natural gums, have made the tung-oil varnishes inferior to none.

During the past decade there has been a great increase of interest in the growing of tung trees in parts of the U. S. where climatic conditions are suitable. One of the most active agents in stimulating large operations has been the American Tung Oil Corporation, organized by the American Paint & Varnish Mfrs. Assn. This corporation's plantations are primarily experimental or demonstration stations. It has been active in furnishing information, seed, and young trees.

It is too soon to predict how successful the investment in a tung-oil tree plantation will be. Just at the present time, tung oil is low in price, being quoted at 6c to 6½c per pound in tank cars, and 7c and 7½c in barrels. The oil is shipped from China in tank vessels, and transferred to barrels or tank cars at U. S. ports of entry.

At present, the program is almost entirely a planting program, no commercial oil being produced in large amount. Plantations of 2000 and 4000 acres, however, were established in the winter of 1930, and still larger units are planned for the present winter.—*Industrial Bulletin* of ARTHUR D. LITTLE, INC.

Automatic Spray Finishing

Hand-operated spray guns have long been used in the industrial finishing field. Automatic spray equipment, which is a recent innovation in the industrial finishing field has gained a place which is giving it wide manufacturing recognition. Results show that automatic spray-finishing installations have reduced manufacturing costs, saved material and cut labor charges.

The field for spray-finishing has broadened so that it now covers almost every product in the manufacturing field. Unique illustrations can easily be given which very dramatically show the great extent of the automatic spray-finishing process.

According to reports, the helmets of French traffic policemen are painted with stripes of luminous paint to aid the motorist and pedestrian in distinguishing them.

Classified Advertising

Advertisements under this heading 45 cents a line per insertion, minimum charge, $1.35. In estimating, calculate six words to one line, and add one additional line for heading. Use this department to obtain help, find positions, buy and sell equipment, dispose of manufacturing properties, etc.

FINISHING FOREMAN

Desires position: several years' experience on high grade store, office and bank fixtures, antique and novelty furniture. Understands modern methods and production, matching colors and finishes. Can handle any number of men. Go anywhere. Address IF-421, care Industrial Finishing.

POSITION WANTED

Lacquer sales promotion or branch manager. Twenty-five years with prominent house. Thoroughly experienced in all lines of the industry. Successful record in both selling and handling salesmen. Address IF-422, care Industrial Finishing.